Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: CH366

Course Name: CORROSION ENGINEERING (CH)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1	a)	Define Corrosion & Derive the expression for determining corrosion rate.	(8)
	b)	Describe the electrochemical reactions involved in corrosion kinetics.	(7)
2	a)	Describe the environmental effects of corrosion.	(12)
	b)	Iron is corroding in sea water at a current density of 1.69×10^{-4} A/cm^2. Determine the corrosion rate in (i)mdd (ii)ipy	(3)
3	a)	Describe the different types of hydrogen damage and its mechanisms.	(10)
	b)	Explain Selective leaching with an example.	(5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Explain the Tafel extrapolation method in corrosion testing.	(7)
	b)	Write a note on impedance spectroscopy. Explain how it can be applied for corrosion testing.	(8)
5	a)	Describe with a schematic sketch the principle and working of a galvanostat for corrosion testing.	(7)
	b)	Explain how salt spray test can be used for corrosion testing.	(5)
	(c)	Write a note on Inhibitors in Corrosion prevention.	(3)
6	a)	Describe the design rules to be adopted for the prevention of Corrosion.	(10)
	b)	Explain the mechanism of Cathodic Protection.	(5)

PART C

Answer any two full questions, each carries20 marks.

7	a)	Describe the corrosion control technique in concrete structures.	(10)
	b)	Describe the corrosion control techniques in stainless steels.	(10)

8	a)	Describe the corrosion control techniques in fertilizer industry.	(10)
	b)	Describe the corrosion control techniques in petrochemical industry.	(10)
9	a)	Describe in detail about the corrosion map of India.	(10)
	b)	Outline the steps practised in corrosion auditing of different industries.	(10)

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